28, 30, 37, and 38) day and one (36) on the fourth day. One in which drainage was done (12) recovered and 1 (39) died. Of those in which reduction was possible, necessitating the removal of the diverticulum only, 9 recovered and 4 died. The better operative prognosis in the cases in which injury to the gut is slight is obvious.

The cause of death in those where reduction was possible and resection was not done remains to be determined. In Gaardlund's case reduction was possible, but secondary gangrene took place and he saved the patient by a secondary operation.

For the reduction of the mortality one must apparently look in the direction of a closer study of the advisability of resection when the gut is reducible or the question of drainage and temporary resection where the gut is certainly lost. More radical procedure in some of the simpler cases and more conserative procedure in the very grave cases seem to be the lines along which we may hope to advance to a better prognosis.

SPINAL GLIOSIS OCCURRING IN THREE MEMBERS OF THE SAME FAMILY, SUGGESTING A FAMILIAL TYPE.[1]

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The following cases present not only an unusual symptom group, but are chiefly of interest owing to the development of the condition in three members of one family, two brothers and a sister. One of the cases, C. S., a boy, aged thirteen years, came under my observation in May, 1912, following his admission to the neurological service at the Jefferson Hospital. The other cases, P. S., female, aged twenty-four years and E. S., male, aged twenty-two years, were studied in November of the same year. As the symptoms were practically identical in all three patients, one, the eldest, will be recorded in detail as illustrating the condition:

P. S., female, aged twenty-four years, single. She had the usual diseases of infancy and childhood and an attack of influenza when sixteen. Her menses began at the age of sixteen years and were regular and not especially painful. When she was aged about eight years a small sore appeared on the second toe of her right foot; her mother, thinking the sore contained a splinter, opened it and removed a small spicule of bone, the wound subsequently healing rapidly. Two years later a similar condition developed on the second finger of the right hand. The patient states that she does not remember ever having been able to button her clothing at the back, nor has she been able properly to recognize touch, pain, heat, or cold on her hands and feet, but can recognize these sensations readily on other parts of her body. That all forms of sensation were lost in the affected areas was elucidated in the physical examination.

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[1] The cases were presented before the Philadelphia Neurological Society, November 22, 1912.

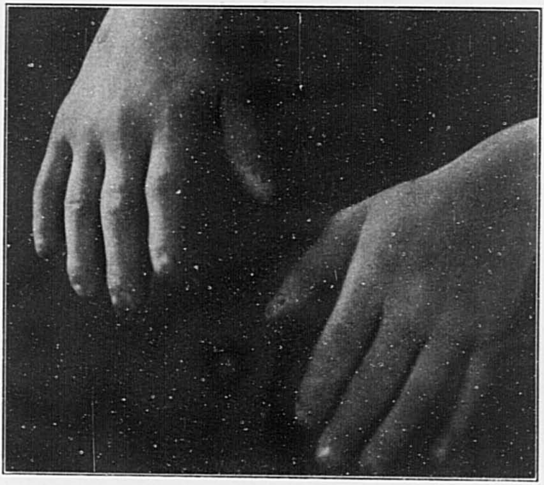

Fig. 1.—Hands of C. S., showing clubbing of fingers and trophic changes of nails.

Examination.—The fingers of both hands show marked trophic changes, some being affected to a greater degree than others. The fingers most involved show spontaneous amputation of the distal phalanges, either partial or total. The ends of the fingers are clubbed, and where the nail remains it is thickened, and presents marked transverse ridges. The skin over the hands is markedly thickened. All of the joints of the fingers are enlarged and stiff, the second joint of the middle finger, right hand, showing the most distinct arthropathy. The right foot is clubbed; the great toe is absent and the second toe partially gone; the other toes are deformed and displaced upward and backward. The foot is reddened and macerated, showing an inflammatory condition, due to a secondary infection, with some swelling and edema of the ankle and leg.

The left foot shows loss of the little toe and partial loss of the other toes; a scar on the inner side of the base of the great toe indicates the site of extrusion of a spicule of bone. The joints of the toes of both feet present changes similar to those described as occurring in the finger joints.

All forms of sensation are entirely lost over both hands; from wrists to elbows, sensation is preserved but diminished; from elbows to shoulders, sensation is slightly diminished. In the lower extremities all forms of sensation are lost over the feet, ankles, and lower third of both legs; from this point to just above the knees sensation is preserved, although diminished, and then is but slightly diminished to the hips. Over face, neck, and trunk sensation is normal.

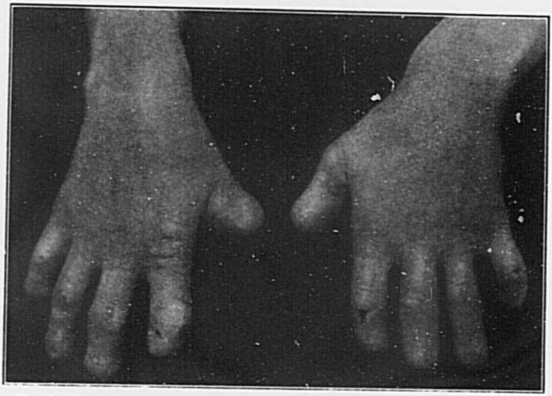

FIG. 2.—Hands of E. S., showing loss of terminal phalanges and enlargement of joints.

The gait is halting, owing to the inflamed and deformed foot, but is otherwise normal as is also the station. There is no muscular wasting, and the patient presents no tremors, palsies, contractures, nor spasticity. There is no scoliosis. The reflexes of the upper and lower extremities are all absent. Babinski's sign is absent; neither is there ankle clonus. The nerves and bloodvessels of the extremities present no gross abnormalities. Mentality is normal.

One of the cases, C. S., presented in addition to the changes described above, superficial ulcers, varying in size from a quarter to a half dollar, over both lower extremities from ankles to knees, chiefly over the anterior border of the tibiæ, also a couple of smaller ulcers over the insteps. These were trophic in character, and the result of trivial contusions, as the boy was very active physically.

Eye examinations were made by Drs. Le Fever and Shannon, and proved to be negative except in the case of E. S., who had concomitant squint (functional) of the right eye.

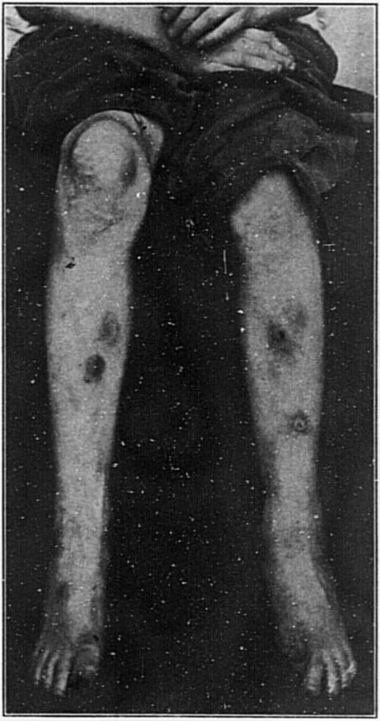

FIG. 3.—Legs and feet of C. S., showing superficial trophic ulders, etc.

Urinalyses were negative in all three cases, and the blood findings were normal except for a slight diminution in the number of erythrocytes and relative decrease in the amount of hemoglobin, which were not sufficient to be of any pathological significance.

A Wassermann test in each case was negative.

An x-ray examination of the right foot of P. S. and the right hand of E. S. was made by Dr. Manges, which revealed trophic changes in all of the bones of the foot except the os calcis, astragalus, and scaphoid. The terminal phalanges of the hand were similarly affected.

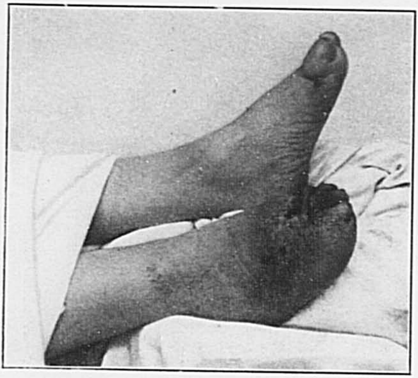

Fig. 4.—Feet of P. S., showing ulceration. loss of terminal phalanges, secondary infection, etc.

Investigation of the family history failed to disclose any possible etiological factor. The father and mother were living and well, having beside the three affected children, two other children, aged five and six years respectively, in perfect health. There was no history of nervous or mental disease, alcholism, tuberculosis, or consanguinity in the family. It should be noted that the two healthy children have not reached the age at which the symptoms first appeared in their sister and brothers.

The system-complex presented by the above cases is comparable to the condition described by Morvan in 1833 as occurring among the fishermen in Brittany. Joffroy and Achard, Thomas, and others have since demonstrated central-cord cavities in this affection and a peripheral neuritis has also been observed by Joffroy and Achard and by Gombault. These findings have led to Morvan's disease being considered as a form of spinal gliosis associated with peripheral neuritis. Bernhardt and Jolly many years ago called attention to the absence of any fundamental difference between Morvan's disease and syringomyelia. Gowers in discussing the nerve changes in this affection says that we must consider whether these changes are of developmental origin, and adds, "It is quite possible that they may share the condition of arrested development, entailing a liability to later morbid changes."

In considering the diagnosis, Raynaud's disease was excluded by the absence of the characteristic vasomotor changes and the presence of whitlows with the loss of sensibility. In sclerodactyla there would be no loss of sensation nor spontaneous amputation of fingers and toes.

Anesthetic leprosy was also considered, but cutaneous pigmentation was absent and the sensory disturbance was segmental instead of corresponding to peripheral-nerve distribution. In confirmation of this, Drs. Stelwagon and Gaskill, of the dermatological department of the Jefferson College, examined the cases and reported that the lesions were not those of leprosy.

The writer has been unable to find any instance of the syndrome occurring in two or more members of one family, and considers that the marked familial tendency exhibited in the above cases suggests the possibility of a new familial type.

THE TECHNIQUE OF ABDERHALDEN'S PREGNANCY REACTION.[1]

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Abderhalden,[2] through his studies into the manner in which the animal body protects itself against alien material which gains access into the blood stream, has evolved the theory that the blood plasma, when the tissues are stimulated by the invasion of such foreign substances, acquires enzymatic properties which do not normally exist; that the enzymes so produced act as protective agents by splitting the complex and harmful antigenic carbohydrate, fat, or protein molecule to assimilable cleavage products of the same, as occurs normally in the gastro-intestinal tract; that these enzymes are specific in character for their particular antigenic molecule; that the action of such ferments may be studied extracorporeally; and finally, that their presence may be demonstrated by physical and chemical means.

He has recently applied[3] these discoveries in the demonstration

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[1] The observations upon which this contribution is based were completed April 1, 1913.

[2] Schutzfermente des tierschen Organismus, J. Springer, Berlin, 1912.

[3] Münch. med. Woch., lix, No. 24; ibid., lix, No. 36; Deutsch. med. Woch., xxxviii, No. 46.